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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/595,854	05/16/2006	Yoshiyuki Nagaoka	59371US004	7905

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EXAMINER	
SCHILLER, ALINA	

ART UNIT	PAPER NUMBER
3671	

NOTIFICATION DATE	DELIVERY MODE
04/17/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

LegalUSDocketing@mmm.com
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Office Action Summary	Application No.	Applicant(s)	
	10/595,854	NAGAOKA, YOSHIYUKI	
	Examiner	Art Unit	
	ALINA SCHILLER	3671	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 December 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 2, 4, 5, 6 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Poole 3,036,928 in view of Sawtelle 6,957,869 and Boeing A&M Environmental Technotes, Volume 6, Number 2 (May 2001).

Regarding claim 1, Poole discloses a marking material comprising a layer containing a binder, a pigment, and microballs (col. 2, lines 12-14; 28-30), wherein said layer is adhered to a surface of a structure (10) for use by virtue of the binder contained in the layer (as seen in Fig. 1). However, Poole remains silent as to the marking material being temporary and fails to disclose that the layer and microballs are thermally-expansible. Sawtelle teaches that temporary and permanent markers are old and well known in the art (col. 1, lines 15, 21-23) and at various times there exists the need to remove both existing temporary and permanent road markings, due to new traffic patterns or just simply worn out markings (col. 1, lines 30-32; 13-15; col. 2, lines 48-50). It would have been well within the skill of those in the art at the time the invention was made to provide the marking material of Poole with a means to assist in its eventual removal in view of the teachings of Sawtelle that even permanent markers

are eventually removed, in order to allow the use of the marking material for how long it is needed and replace the existing marker due to new traffic patterns or just simply being worn out. Boeing A&M Environmental Technotes teaches thermally-expansible microballs, which enclose a gas, which expands when exposed to elevated temperatures, and as the microballs expand, they expand and pop the layer, in order to easily remove it. Further, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the microballs and layer of Poole to be thermally-expansible by using thermally-expansible microballs, as taught by Boeing A&M Environmental Technotes, in order to provide the means to assist in the markers removal so that it can be easily removed.

Regarding claims 2 and 6, Boeing A&M Environmental Technotes discloses that the thermally-expansible microballs enclose a gas, which expands when exposed/heated to elevated predetermined temperatures, therefore making the microballs expand at a predetermined temperature; and as the microballs expand they expand and pop the layer, the marking material becoming peelable from the surface of the structure.

Regarding claims 4 and 8, Poole discloses that the marking material and pavement marker comprise a bead layer containing transparent beads (col. 3, lines 59-61); said bead layer being provided on a side of the layer opposite to a side which contacts with the structure (Fig. 1; col. 4, lines 41-53).

Regarding claim 5, Poole discloses a pavement marker comprising a marking material as described above, wherein the pavement marker is disposed, for use, on a

pavement as a surface of the structure by virtue of the binder contained in the layer (as seen in Fig. 1). However, Poole remains silent as to the marking material being temporary and fails to disclose that the layer and microballs are thermally-expansible. Sawtelle teaches that temporary and permanent markers are old and well known in the art (col. 1, lines 15, 21-23) and at various times there exists the need to remove both existing temporary and permanent road markings, due to new traffic patterns or just simply worn out markings (col. 1, lines 30-32; 13-15; col. 2, lines 48-50). It would have been well within the skill of those in the art at the time the invention was made to provide the pavement marker of Poole with a means to assist in its eventual removal in view of the teachings of Sawtelle that even permanent markers are eventually removed, in order to allow the use of the marking material for how long it is needed and replace the existing marker due to new traffic patterns or just simply being worn out. Boeing A&M Environmental Technotes teaches thermally-expansible microballs, as set forth above. Further, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the microballs and layer of Poole to be thermally-expansible by using thermally-expansible microballs, as taught by Boeing A&M Environmental Technotes, in order to provide the means to assist in the markers removal so that it can be easily removed.

Claim 3 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Poole 3,036,928 in view of Sawtelle 6,957,869 and Boeing A&M Environmental Technotes, Volume 6, Number 2 (May 2001) as applied to claims 2 and 5 above, and further in view of Matsumoto website (http://web.archive.org/web/20010719003525/http://mtmtys.co.jp/english/product/fmc_f_f.htm) (July 19, 2001).

Poole as modified by Sawtelle and Boeing A&M Environmental Technotes discloses a marking material and pavement marker as set forth above, but fails to disclose that the thermally-expansible microballs have an expandibility of at least 10 times in terms of volume, compared with the volume thereof at the temperature of working atmosphere. Matsumoto website teaches that it is well known in the art to have expansion ratios of approx. 20, 60 and 70 of thermally-expansible microballs mixed and formed into a layer, ratios depending on particle size, which is considered to meet the limitation of at least 10 times in claims 3 and 7. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the thermally-expansible microballs of Poole as modified by Sawtelle and Boeing A&M Environmental Technotes to have an expandability of at least 10 times in terms of volume, depending on particle size, as taught by Matsumoto website, since this is well known in the art of thermally-expandable microballs, in order to expand the layer, pop and easily remove it.

Response to Arguments

2. Applicant's arguments with respect to claims 1 and 5 have been considered but are moot in view of the new ground(s) of rejection.

3. In response to the argument that the marking material of Poole is not permanent, Sawtelle teaches that in the art of road marking materials no marking materials are actually permanent, since all road markers are eventually removed, to allow the use of the marking material for how long is needed and replace the existing marker due to new traffic patterns or just simply being worn out. Further, there are numerous teachings, such as those of Boeing A&M Environmental Technotes, Matsumoto website, the 2003 Aerospace Coatings Removal and Coatings Conference (Industry Survey and Research of Depaint Methods publication), Expancel website (see office action mailed on 08/14/2007), etc., which disclose that it is well known in the area of coatings removal to use thermally-expandable microballs as a release agent.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALINA SCHILLER whose telephone number is (571)270-3088. The examiner can normally be reached on Mon-Fri, 7:30AM-4:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas B. Will can be reached on (571)272-6998. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Thomas B Will/
Supervisory Patent Examiner,
Art Unit 3671

AS
03/17/2008